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The Distortionary Effects of Tariff Exemptions in Argentina

Faezeh Foroutan

Argentina suffers from the indiscriminate use of tariff exemptions — exemptions granted to an industry no matter what its export performance, or exemptions granted only for specific inputs (often capital goods).

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This paper — a product of the Trade Policy Division, Country Economics Department — is part of a larger effort in PRE to study the design of tariff reform. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Sheila Fallon, room N10-041, extension 38009 (22 pages with tables).

Like many other countries, Argentina offers exporters tariff exemptions, or duty drawbacks, as export incentives to reduce the anti-export bias that otherwise exists in an import-protecting economy.

Like other countries, it also grants tariff exemptions for the entire output of particular industries or the regions in which those industries are located. Foroutan develops a simple model to show that the indiscriminate use of tariff exemptions has several undesirable effects:

- Like other fiscal incentives, it deprives the government of revenues.

- The more widespread they are, the less effective tariff exemptions are in promoting exports. When they are granted only to exports, they function as an export subsidy and a reduced tariff on imported input — so imports expand as a share of total output, domestic sales of output contract, and the use of imported inputs increases. But when they are granted to an industry independent of its export performance, exemptions no longer serve as an export subsidy.

- The more capital-intensive an industry, the more exemptions increase its effective protection — because it is capital goods that are exempted from duty. Industrialization in Argentina is based on import substitution, a process that favors capital-intensive industries. Tariff exemptions for capital goods worsen the negative effect of distortionary trade policies on employment.

- Exemptions increase the demand for imports more than an export subsidy does, because output in the competing domestic input industry contracts. This might be desirable, if reducing production costs made domestic firms more competitive.

But in Argentina exemptions are granted primarily for capital goods, the level of protection is nearly prohibitive for capital goods that are domestically produced, and capital goods for which there is no satisfactory domestic output are exempted from duty. This type of policy drives a wedge between the relative domestic and international prices of the two types of capital goods and encourages more intensive use of the noncompeting type of capital goods in all industries.

Produced at the PRE Dissemination Center

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by
Faezeh Foroutan*

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Tariff exemptions or duty drawbacks for exporters are widely used by many countries as an instrument for providing export incentives. Duty exemptions for exporters are intended to create a "free trade regime" for exporters thereby reducing the degree of anti-export bias that would otherwise exist in an economy characterized by import protection. The practice is not defined as an export subsidy and is therefore compatible with the GATT rules. Other than to aid exports, a number of developing countries grant exemption from duty to purchases of certain inputs by certain industries located in specific regions in order to promote those industries and/or regions. The present paper argues that when tariff exemptions are granted as a means of industrial/regional promotion to an industry independently of its export performance, the tariff exemptions lose their potential as an export promotion instrument. To show this point, a simple model1/ is used in the first part of the paper. In the second part, the results of the model are applied to the case of Argentina were duty exemptions are widely used for purposes other than export promotion. The case of Argentina is of interest because it exemplifies the practice of many developing countries where duty and other tax exemptions are used as a means of industrial/regional promotion. Summary and conclusions are contained in the last section.

1/ This model is based on Richardson (1987) and Herander et al. (1986).

I. The Model

Tariff exemptions on imported inputs for exports (henceforth referred to as TAR for Temporary Admission Regime) are an important instrument for reducing the degree of anti-export bias implicit in import protection. TAR creates a "free trade regime" for exporters by allowing exporters to purchase inputs at international relative prices rather than at distorted domestic prices. Because TAR is compatible with the GATT rules and is a common practice among both developing and developed countries, it constitutes an important policy instrument to aid exports as compared to other forms of export subsidy which may elicit retaliatory response by the importing countries.

The model developed in this section shows that tariff exemptions act as an input subsidy and an export subsidy combined. TAR causes exports to expand, domestic sales to contract and imports of duty-exempted products to rise. The model contains a number of restrictive assumptions that help to keep it fairly straightforward while proving the point. Most of these assumptions can be relaxed without interfering with the main conclusions.

For purposes of discussion, assume that in a certain industry output is produced by a sole producer who sells his product partly in the domestic market and partly in the export market. Assume also that the protection afforded the output of the monopolist is so high as to exclude foreign competition in the domestic market. This assumption is necessary to separate out the two markets in which the monopolist operates. Otherwise with homogeneous output the monopolist cannot discriminate between the two markets. The domestic price of the product is set by the monopolist to maximize his profits but the export price is exogenous and given. The output is produced by one

type of input which can be either imported or purchased on the domestic market at a given price. The imported input can either be assumed as a perfect substitute for domestic input or as an imperfect substitute. In either case, most of the conclusions of this paper are unaffected by this assumption. Domestic production of input is assumed to be perfectly competitive. Let us define the following variables:

Q = output

$= Q(M+M^*)$ $Q'>0$; $Q''<0$ when M and M^* are perfect substitutes

$= Q(M, M^*)$ $Q_i'>0$; $Q_i''<0$ $i=M, M^*$ when M and M^* are imperfect substitutes

M, M^* = Domestic and imported inputs

$Q_d = (1-s)Q$ = Output sold to domestic market

$Q_x = sQ$ = Exports

$P_d[.], P_w$ = domestic and export price of Q

P_m, P_m^* = domestic and world price of input

t = Tariff rate on M^*

In the absence of any promotion scheme, the monopolist chooses s, M and M^* to maximize his profit, π:

$$\underset{s,M,M^*}{\text{Max}}\ \pi = P_d[(1-s)Q[.]](1-s)Q[.] + P_w sQ[.] - P_m M - P_m^*(1+t)M^*$$

The first order conditions imply that:

(i) $P_w = MR_d$ where

$MR_d = P_d + P'_d [.] (1-s) Q[.]$ and

(iia) $P_m = P^*_m(1+t) = P_w Q'$

when M and M^* are perfect substitutes or

(iib) $P_m = MR_d\, Q'_M = P_w Q'_M$ and $P^*_m(1+t) = Q'_{M^*}$

when M and M^* are imperfect substitutes.

Equation (i) implies that domestic output and exports are so chosen as to equate the marginal revenues in the two markets. Equations (iia) and (ii_b) imply that domestic and imported inputs are employed up to the level where their marginal cost equals their marginal product at international prices.

Now assume the government exempts exports from duty payment on the imported input. Because the share of exports in total output is equal to s, total imports for exports are equal to sM^*. Thus, the final import bill is now:

$$(1-s)\, P_m M^* + s\, P^*_m M^* = P^*_m\, (1+t(1-s))M^*$$

Rewriting the profit function to take account of the exemption, the first order conditions become:

(iii) $$MR_d = P_w + \frac{t\, P^*_m M^*}{Q}$$

(iva) $P_m = P_m^*(1+t(1-s)) = ((1-s)\ MR_d + sP_w)\ Q'$

when M and M^* are perfect substitutes and

(ivb) $P_m = ((1-s)\ MR_d + s\ P_w)\ Q'_M$ and

$P_M^*\ (1+t(1-s)) = ((1-s)\ MR_d - s\ P_w)\ Q'_{M^*}$

when M and M^* are imperfect substitutes.

Condition (iii) implies that $(MR_d - P_W) > 0$. Because in the absence of TAR, $MR_d = P'_W$ and because second order conditions require that $MR'_d < 0$, the introduction of TAR reduces domestic sales. By the same token, both imported and domestic input prices are now smaller. Also because the bracket on the far right of

equalities (iva) and (ivb) is greater than P_w (since $MR_d > P_w$), both Q'_M and Q'_{M^*} must be smaller, i.e. total output has increased. Increased total output and reduced domestic sales imply an increase in exports. On the other hand, given the assumption of a perfectly competitive market for M which implies non-increasing returns to scale in the production of M, reduced P_m implies reduced supply of domestic input. Thus, in the presence of an increase in total output, imports must increase. In summary, the net effect of TAR is to increase output, exports, and imported input and to reduce domestic sales of the output and domestic supply of th ıput.

Specifically, TAR behaves both as an export subsidy and an input subsidy in the form of reduced tariff on imported input. To see the point, consider the effect of an export subsidy at the rate of z

where $z = t\ P^*M^*/P_wQ$. The profit function now becomes:2/

$$\pi = P_d[.]\ (1-s)\ Q\ [.] + P_w\ (1+z)\ s\ Q\ [.] - P_mM - P_m^*(1+t)\ M^*$$

and the first order conditions are:

(v) $\quad MR_d = P_w\ (1+z)$

(vi) $\quad P_m = P_m^*(1+t) = P_w\ (1+z)\ Q'$

As with TAR, $(MR_d-P_w) > 0$ in equation v implies a fall in domestic sales. But now P_m is unchanged. This means that the domestic supply of inputs is unchanged. Because total output expands, imports of inputs also expand. However, both the increase in total outputs and in imported inputs are less than with TAR. By implication, exports increase but by less than with TAR. Thus, as far as domestic output is concerned, the effect of TAR is similar to an export subsidy of z percent where $z = t\ P^*\ M^*/P_w\ Q$. On the other hand, the impact of TAR on input demand is similar to a cut in the tariff rate on imported inputs from t to t' such that $t' = t\ (1-s)$. In fact, with a reduction in the tariff, the first order conditions for profit maximization are:

(vii) $\quad MR_d = P_w$

(viii) $\quad P_m = P_m^*\ (1+t') = P_wQ'$

Because $t'<t$ implies P_m is now lower, this further implies an expansion in output and a reduction in the use of domestic input. With a reduction of tariff on imported input, however, domestic sales remain unchanged and the increase in output is entirely exported.

2/ For ease of exposition M and M^* are henceforth assumed to be perfect substitutes.

From the above argument it is clear that TAR is equivalent to a combination of export subsidy and reduced tariff on the imported input. As an export subsidy, TAR causes domestic sales to contract and exports to expand by more than the increase in total output. As reduced tariff on imported input, TAR causes the demand for the imported input to increase and the supply of domestic input to fall.

The above statements are shown in Figures 1 and 2. Figure 1 shows the effect of an export subsidy, a tariff reduction, and TAR on total output. It also shows the composition of total output between domestic and export markets. Figure 2 shows the effect of the same policies on input demand.

Before going on to the next section it must be once more stressed that the restrictive assumptions of the model are mostly inconsequential in terms of the general conclusions. For example it is possible to think of the output of the industry in question to be produced by a number of competitive producers who behave as price takers both in the domestic market and the international market. In that case domestic price must equal the international price and producers are indifferent between exporting or selling to the domestic market so long as no export promotion scheme is in existence. It is customary in this case to assume that producers first satisfy their domestic market and sell the remainder of their output in the international market. However, even in a competitive setting producers are no longer indifferent between domestic and export markets when some kind of export promotion scheme is adopted. It is easy to show that the main conclusions of the model continue to hold even when domestic output market is assumed to be perfectly competitive.

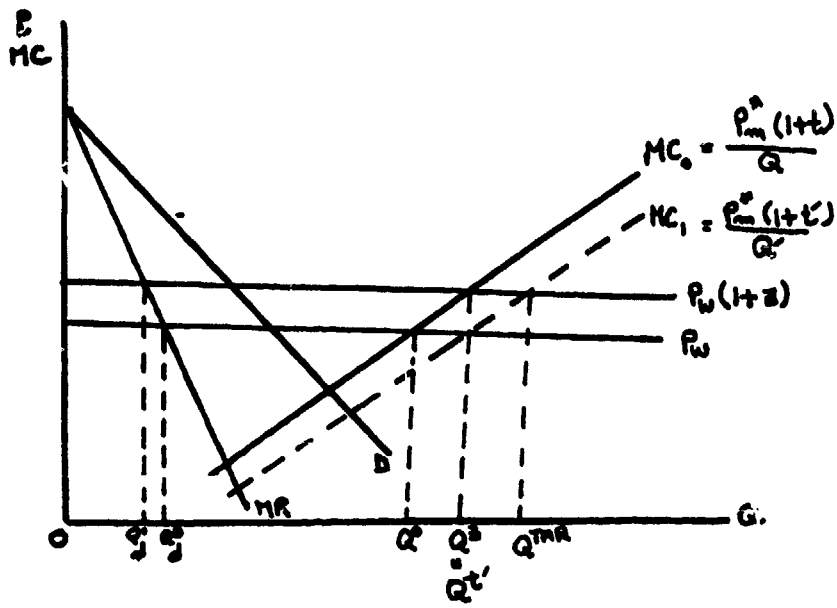

Figure 1: The effect of an export subsidy, a production subsidy and TAR on total output, domestic output and exports.

OQ^0 = initial total output

OQ^z = total output with an export subsidy

$OQ^{t'}$ = total output with a production subsidy (reduction in tariff rate from t to t'

OQ^{TAR} = total output with a production subsidy (reduction in tariff rate from t to t' with TAR

OQ_d^0 = initial domestic output

OQ_d^1 = domestic output with an export subsidy

$Q^0Q_d^0$ = initial exports

$Q^1Q_d^z$ = exports with an export subsidy

$Q^0Q_d^{t'}$ = exports with a production subsidy

$Q^1Q_d^{TAR}$ = exports with TAR

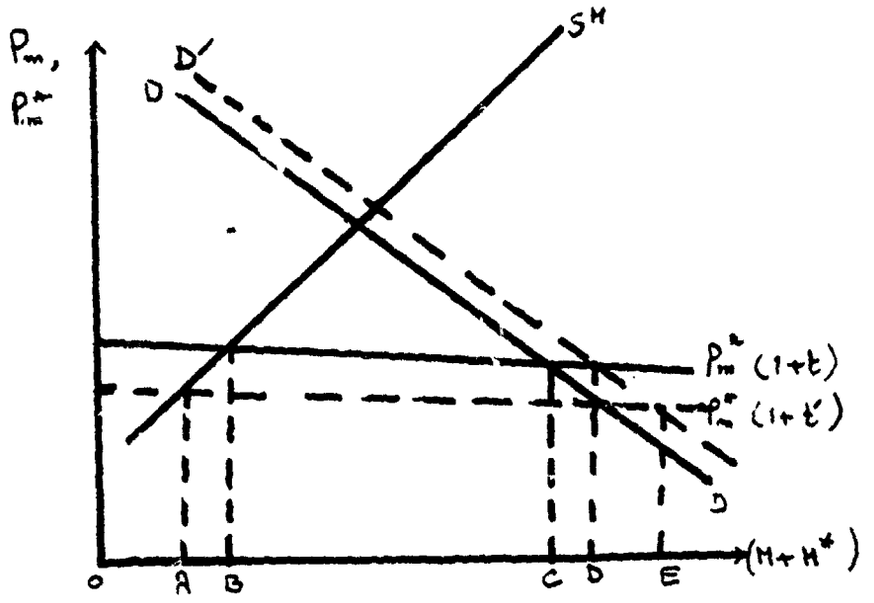

Figure 2: The effect of a production subsidy, an export subsidy and TAR on demand for domestic and imported inputs.

Legend

DD = initial input demand curve

D'D' = input demand with an export subsidy

OB = initial demand for domestic input

OA = demand for domestic input with a tariff cut (production subsidy)

BC = initial imports

BD = imports with an export subsidy

AD = imports with a tariff cut

AE = imports with TAR

II. Tariff exemptions in Argentina

In Argentina, tariff exemptions are granted for a variety of reasons and constitute part of a more comprehensive package of fiscal incentives. Fiscal incentives are geared towards the achievement of the following objectives (for a more comprehensive discussion, see Bank Report #6990-AR, Argentina: Industrial Sector Study, Nov. 1987):

- Regional Promotion: Regional promotion schemes date back to the mid-1960s and were adopted to boost investment in the economically depressed areas of the country. Industries that are located in the promoted regions enjoy various types of tax exemptions and/or deferrals, which include tariff exemption. In 1986, Argentina employed three types of regional promotion schemes. The first was the Tierra del Fuego Regime that granted import duty exemption to both capital and intermediate goods. The second scheme applied to most of the northern provinces, and granted tariff exemption to the imports of non-competing capital goods. In the rest of the country, all imports were in theory subject to the nominal duty rates.
- Industrial Promotion: Industrial promotion schemes also grant a variety of tax exemptions and/or deferrals to targeted industries. Duty exemption or a substantial reduction in the rate of duty on the imports of non-competing capital goods is an integral part of these schemes. The main beneficiary industries have been iron and steel, cellulose and paper, petrochemicals, and most

recently, the computer industries. In addition, Resolution No. 197/87 extended the right of duty exemption to the textile industry for a period of two years, and Resolution No. ME518/86 granted complete exemption from tariffs on paper imports for the printing industry.

- Temporary Admission Regime (TAR): Exporters are entitled to duty free imports of those intermediate imports that in the judgment of government authorities do not have good and/or reasonably priced domestic substitutes. Exemption from duty on imports of capital goods is not an integral part of TAR. That is, exporters do not pay duty on capital goods only to the extent that they operate within sectoral/regional promotion schemes. Following the most recent reform of the trade regime (October 1987), the list of goods in TAR was considerably expanded. However, at this time, it is not possible to judge the impact of this reform on the affected firms. Until the most recent reforms, the apparent importance of TAR has been minimal in the vast hierarchy of Argentina's tariff exemptions.
- Latin American Integration Association, LAIA: Lastly, certain imports, mostly capital goods and intermediates which originate in the member countries of LAIA, enjoy considerable tariff reductions. According to official estimates, the average rate of duty on LAIA imports in 1987 stood at approximately 16 percent compared to an average nominal duty of 33 percent for similar products originating in the rest of the world.

II.1 Structure of Tariff Exemptions by Sector

Table 1 provides data on the average proportion of total imports that have for various reasons been exempted from duty payment during the period 1960-1985. Throughout the 1960s and 1970s, on average, more than half of Argentina's total imports have enjoyed complete exemption from tariff payments. During the 1980s, for the two years for which data were available, the proportion of exempted imports fell to one third of the total. Rather than from a change in government policies, the fall in the proportion of tariff exempt imports stemmed from the slow-down in the economic activity that exerted a relatively greater downward pressure on the demand for exempted imports, mostly intermediate and capital goods.

Table 1 also displays two sets of data on the average realized tariff rate approximated by the ratio between actual tariff revenues and imports not exempted from duty and total imports. The observed fall in the rate of realized duty over time is the result of the gradual lowering of tariff barriers during the period. In fact, the actual tariff rate on total imports (T) can be expressed as a weighted average between the actual realized tariff rate on the imports subject to duty(t_1) and zero duty on the rest of the imports, with weights representing the proportion of the two types of imports in the total:

$$t = at_1 + (1-a)\, t_2; \qquad t_2 = 0$$

The historic fall in t_1 (column 2 in the table) coupled with more or less constant value of (1-a) indicates that the fall in T reflects the

Table 1
Total Imports and Imports Exempt from Duty Payment 1960-86

Year	Total 1000 US$	% Exempt From Duty Payment	Duty Paid as % of Imports Subject to Duty	Duty Paid as % of Total Imports
1960	1,249,291	68	49.3	15.6
1961	1,460,379	60	56.1	22.2
1962	1,345,502	54	51.2	23.3
1963	980,677	53	43.4	20.4
1964	1,077,163	45	41.2	23.3
1965	1,198,361	50	45.8	23.2
1966	1,124,306	51	51.9	25.3
1967	1,095,542	49	38.5	19.7
1968	1,169,189	52	38.3	18.4
1969	1,576,090	53	39.9	18.6
1970	1,684,633	54	34.8	16.0
1971	1,809,409	54	32.5	15.5
1972	1,904,682	57	30.2	12.8
1973	2,229,468	63	28.1	10.3
1974	3,634,918	59	23.7	10.0
1975	3,946,501	57	25.1	10.1
1976	3,033,000	51	22.2	11.7
1977	4,161,539	51	19.7	9.9
1978	3,853,655	48	22.2	11.5
1979a/	5,228,463	62	23.9	9.5
1980b/				
1985	3,814,229	33	22.7	15.6
1986	4,724,134	29	28.8	20.5

a/ First 10 months.
b/ Data not available from 1980 to 1985.
Source: INDEC

reduction in the height of tariff barriers up until the end of the 1970s. The increase in the value of T in 1985 and 1986 stems from both the increase in the proportion of imports subject to duty and the introduction of a 10 percent surcharge on imports in 1985, as part of the Austral Plan.

Table 2 provides information on the sectoral composition of exempted imports for 1986. It can be observed that the rate of exemption varies widely across sectors -- sections of the Brussels Tariff Nomenclature. However, the figures are themselves a result of aggregation of more detailed information available on the 99 chapters of the BTN classification.

The major exemptions are obviously granted to intermediates and capital goods imports. Within the latter group, section 16, which accounts for 25 percent of imports, electric machinery and equipment have a higher proportion of duty free imports (61%) than non-electric machinery (25%). The different treatment of imports in this sector, as in others, reflects the extent to which imports compete with domestic output. Because of highly uneven treatment of competing and non competing imports in Argentina, those imports that do not have a good domestic substitute are generally subject to a more liberal policy and are the only ones to be granted tariff exemption.

Within intermediate products, metals imports (section 15) are on average exempted from duty payment by 48 percent. However, within this group, metallurgical products (44%) and copper (88%) are those with the highest rate of exemption. Minerals comprise another important category of intermediates. The average rate of minerals duty exempt imports, 30 percent, results from a vary high rate of exemption for metallurgical minerals (86%) and much lower rate for the rest of the products belonging to this section.

From Table 2, it appears that a large proportion of consumption goods imports (sections 12 and 13) are also exempted from duty payment. However, these sections account for an insignificant share of total imports and the exemptions are normally granted to

Table 1
Total Imports and Imports Exempt from Duty:
Various Product Categories - 1986

	Total 1000 US$	% Exempt from Duty	Duty Paid: % of Imports Subject to Duty	Duty Paid: % of Total Imports	Nominal Tariff Rate (*): Simp Average	Nominal Tariff Rate (*): Weighted Average
Total	4724134	29	28.8	20.5	27.0	28.0
Section 1	39964	61	14.1	5.2	19.0	19.0
Section 2	245416	42	12.5	7.3	19.2	18.3
Section 3	7203	14	27.5	23.7	21.8	22.0
Section 4	67831	30	17.5	12.1	26.2	26.9
Section 5	570517	30	19.0	13.6	26.6	26.8
Section 6	1036182	13	18.4	15.9	18.2	12.4
Section 7	284992	10	30.1	27.0	26.0	24.9
Section 8	2692	24	31.7	24.0	25.3	24.0
Section 9	55102	6	19.6	18.6	31.6	31.7
Section 10	123261	15	26.4	22.6	23.4	27.0
Section 11	110075	22	25.4	19.8	35.0	36.8
Section 12	1397	55	33.6	13.9	37.0	36.9
Section 13	47203	55	34.5	15.6	29.6	28.6
Section 14	4508	0.0	21.6	21.6	24.0	22.5
Section 15	396409	48	32.3	16.7	29.2	28.0
Section 16	1196651	40	43.6	26.4	42.5	36.6
Section 17	282831	23	46.6	36.0	28.0	28.5
Section 18	224409	26	36.2	26.5	42.6	51.2
Section 19	576	28	35.7	26.7	27.0	27.0
Section 20	24233	27	40.6	29.6	30.6	27.2
Section 21	216	100	0.0	0.0	0.0	0.0

(*) The weights are the number of BTN positions corresponding to each chapter. To the above rates a 10% surcharge must be added in order to obtain the global nominal average tariff prevailing in 1986.
For a definition of sections see the following page.

Source: INDEC and Lucangeli (1987).

Table 2: continued
Definition of BTN Sections

Section 1: Live animals and products thereof.

Section 2: Vegetable and vegetable products.

Section 3: Oils and fats.

Section 4: Processed foods, beverages and tobacco.

Section 5: Mineral products.

Section 6: Chemical products.

Section 7: Synthetic materials and products thereof.

Section 8: Leather, fur and products thereof.

Section 9: Wood products.

Section 10: Paper and printing.

Section 11: Textiles.

Section 12: Shoes, hats, umbrellas, etc.

Section 13: Ceramics cement, stone and similar products.

Section 14: Jewelry products.

Section 15: Metals and metal products.

Section 16: Machinery and equipment.

Section 17: Transport equipment.

Section 18: Optical and precision instruments.

Section 19: Arms and ammunitions.

Section 20: Other manufacturing n.s.e.

Section 21: Objects of art and antiques.

domestic manufacturers for their imports of parts and components for domestic production.

The data in this paper are reasonably close to those in Berlinski (1985) who analyzed the percentage of duty exempt imports in Argentina and other members of the LAIA. Berlinski estimated that 44 percent of Argentine imports from non-LAIA countries in 1979 were exempted from tariff payments and that the higher rate of exemption applied to intermediate and capital goods.

II.2 Fiscal Impact of Tariff Exemptions

The data contained in Table 2 allow some estimation of the fiscal cost of tariff exemptions. Given an average nominal tariff rate of 27-28 percent which together with the ten percent surcharge introduced in 1985 raises the average to 37-38 percent,3/ and given a realized tariff rate of only 20.5 percent, the foregone revenue in 1986 can be estimated at approximately 775-822 million dollars4/ . As far as the relative contribution of the various promotion schemes discussed earlier to the total loss of revenues is concerned, a recent analysis was conducted at the Ministry of Economy for 1987. The results appear in Table 3.

3/ In October 1987 tariff rates were increased again by 5 percent across the board.

4/ This estimate is partial because it ignores the effect of various tax exemptions on firms' activity and hence on the tax base for those taxes that firms do actually pay.

The Ministry's figures for total revenue loss in 1987 are of the same order of magnitude as those contained in this paper. The contributing schemes are many. The first reflects the Tierra del Fuego Regime. Together with the Industrial Promotion Law and the special status granted to imports from LAIA, this regime accounts for the main part of the lost revenues. The seconds refers to the importation of natural gas from Bolivia. It is interesting to note that the cost of the Temporary Admission Regime is relatively low. For example, imports entering the country under TAR account for only 4.4 percent of the estimated total imports covered by special regimes and the ensuing revenue loss represents approximately 6 percent of the the total. However, these percentages are likely to have increased in 1988 following the expanded coverage of the TAR since October 1987.

II.3 The Impact of Duty Exemptions on Firms' Cost Structure

How relevant are import duty exemptions relative to other fiscal incentives in terms of their impact on the cost competitiveness of firms operating within the affected industries/regions? Due to lack of disaggregated data at the firm level, the question remains unanswered. From our discussions with informed sources in Argentina, it appears that tariff exemptions in comparison with other fiscal incentives do not exercise a great financial impact on firms in general, but their impact is significant for a few producers, especially those located in Tierra del Fuego. A recent study by Artana (1987) confirms the above observation. Artana analyses the impact of various fiscal incentives granted by the Ministry of Economy to 652 investment projects during the period 1973-85, on the "margin of efficiency" of the projects involved. In Artana's study, the margin

Table 3
Fiscal Cost of the 1987 Import Regime
Millions of US dollars

Regime	Total Imports	Nominal Duty %	Realized Duty %	Fiscal Cost
Special custom area (Law no. 19.640)	372	61	25	135
Gas from Bolivia (Resol. no. ME 624/87)	266	20	0	53
Cap. Goods, Textiles (Resol. no. ME 197/87)	48	23	10	6
LAIA	1646	33	16	280
Industrial Promotion (Decree PEN 515/87)	400	53	0	212
Paper for printing (Res. ME 549/89 & 518/86)	18	30	0	5
TAR (Decree PE 1554/86)	127	35	0	44
Total	2877			735

Source: Ministry of Economy

of efficiency is computed by comparing the actual cost of the projects with their hypothetical cost in the absence of incentives. He evaluates the present value of the implicit subsidy of the incentives at October 1985 prices by assuming a discount rate of 10 percent and taking into account only those incentives that are granted under the industrial promotion scheme to all the national territory. The estimates, therefore, exclude additional benefits that accrued to projects that were also affected by regional promotion schemes.

Of the 652 projects approved by the Ministry of Economy during 1973-85, 65 percent were implemented in conformity with the planning horizon presented by the firms. Table 4 contains the estimated subsidies implicit in the fiscal incentives for those projects.

As noted in Table 4, the highest subsidy derives from VAT exemption and income tax deferral. Tariff exemptions in the above estimates are quite marginal and account for only two percent of the estimated total subsidy. In this respect Artana's result are compatible with those of the Ministry of Industry which also show that, in relative terms, tariff exemptions have a small fiscal cost. However, it is important to recall again that the figures in Table 4 refer only to industrial incentives granted at the national level and ignore the effect of regional schemes. Also, the estimated subsidy of the tariff scheme is based upon an assumed average tariff rate of 10 percent for capital goods. Therefore, it is likely that at least for some firms, the above figures underestimate the impact of tariff exemptions on their cost competitiveness.

In summary, our analysis shows that tariff revenue losses due to exemptions are large and growing. Evidence suggests that these losses can be reduced by over half if, ceteris paribus, all exemptions except for those granted to the LAIA members and to exporters were to be lifted. In fact, according to the estimates contained in Table 3, forgone revenues attributable to exemptions granted to the aforementioned two groups represent only 38 and 6 percent of total lost revenues respectively. Thus, by abolishing the other types of exemptions, the government could raise its revenues and/or lower the average height of all its tariff barriers.

Table 4
Present Value of Subsidy of the Fiscal Incentives at October 1985 prices

	Millions of A	% of Total
Income tax deferral	625	22.8
Other tax deferral	285	10.5
VAT exemption	929	33.9
Profit tax exemption	212	7.8
Preferential price for petrochemical inputs	623	22.8
Import duty exemption	62	2.2
Total	2736	100.0

Source: Artana (1987), p. 42.

III. Summary and conclusions

This paper examined in detail the structure of tariff exemptions in Argentina where the exemptions are widely used not only for promoting exports, but also for promoting certain industries and regions. The case of Argentina is of interest because it exemplifies the practice of many other developing countries. The paper also developed a simple model to show that the indiscriminate use of duty exemptions has several undesirable effects.

First, duty exemptions deprive the government of revenues. This is of course a characteristic of all other fiscal incentives.

Second, as the model developed in Section I proves, the more widespread the tariff exemption, the less effective they become as an instrument for export promotion. In fact, the model showed that when tariff exemptions are granted only to exports, they function as an

export subsidy and a reduced rate of tariff on imported input, bringing about an expansion of exports as a proportion of total output, a contraction of domestic sales and an increase in the use of imported input. However, if tariff exemptions are granted to an industry independently of its export performance, the exemptions no longer function as an export subsidy. In fact in the extreme case where the exemptions are granted to the entire production as opposed to exports alone, the exemptions increase exports only to the extent that output increases. In other words the proportion of output sold in export markets remains unaffected

Third, the exemptions widen the variability of effective protection rates of industries in relation to their capital intensity. Because capital goods are the ones to be exempted from duty payment, the more capital intensive an industry is, the stronger the impact of exemptions on its effective protection is going to be. Given the historic pattern of industrialization in Argentina based upon import substitution, a process that has favored capital-intensive industries, tariff exemptions for capital goods enhances the outcome of distortionary trade policies in terms of the negative impact they exercise on labor employment (see Nogues 1985).

Fourth, the exemptions increase the demand for imports more than an export subsidy does, because output in the competing input industry contracts. By itself, this outcome may seem desirable. After all, a reduction in production costs makes domestic firms more competitive. However, in the case of Argentina, there exists a strong dichotomy in the structure of tariff rates. First, exemptions are primarily granted to capital goods. Second, the level of protection is

very high, almost prohibitive for those capital goods which are domestically produced, whereas those capital goods for which no satisfactory domestic output is available are exempted from duty. This type of policy introduces a wedge between the domestic relative price of the two types of capital goods and their international relative price and encourages a relatively more intensive use of the non-competing type of capital goods in all industries.

The above considerations lead us to conclude that duty exemptions other than to exports should be phased out for the existing projects and not be extended to new investment projects. In terms of tariff agreements with LAIA members affecting capital goods, the Argentine government conducted a number of in-depth studies to examine the opportunities created by the removal of trade barriers between Argentina and other LAIA member countries for enhancing Argentina's capital goods industries in terms of intra-industrial specialization and the exploitation of larger markets and scale economies (see e.g. Prota and Fontanals (1987) and Chudnovsky and Groisman, (1987)). These studies are very useful in indicating when, if at all, tariff exemptions should be envisaged in the capital goods industries and/or in other industries in relation to other LAIA member countries.

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